

REMARKS

Claims 1-29 were pending in the application. Claims 3, 5, 10, 11, 17, 18, 22, 23, and 29 have been amended. Claims 30-35 have been added. Accordingly, claims 1-35 are now pending in the application.

The Examiner contends that the information disclosure statement (IDS) filed on 11/05/01 fails to comply with 37 CFR 1.98(a)(2) because a copy of the UK search and examination report cited on form PTO-1449 was not received. However, Applicant respectfully submits that a copy of the UK search and examination report was submitted with the IDS filed on 11/05/02 as evidenced by the enclosed copy of the return postcard stamped by the USPTO. Applicant requests the Examiner to consider the UK search and examination report, which has been resubmitted in the enclosed IDS.

The Examiner objected to claims 11 and 29. Applicant has amended claims 11 and 29 to overcome these objections.

Claims 3-5 and 22-24 were objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claims and any intervening claims. Applicant appreciates Examiner's consideration of these claims.

35 U.S.C. § 103 Rejection

Claims 1, 2, 7-12, 14-21, and 26-29 were rejected under 35 U.S.C. §103(a) as being unpatentable over Williams (U.S. Patent 5,953,742) in view of IEEE Dictionary – “parity check”. Applicant respectfully traverses this rejection.

Applicant discloses, on page 43, lines 10-27 of Applicant's Specification,

“Accordingly, there has been described, a dirty memory is operable to store dirty indicators, each dirty indicator being settable to a given value indicative that a page of memory associated therewith has been dirtied. The dirty indicators are stored in groups with each group having associated therewith a validity indicator computed from the dirty indicator values of the group. The control logic is operable on reading a group to compute a validity indicator value based on the dirty indicator values for the group to determine the integrity of the group. The integrity can be confirmed by comparing the computed validity indicator value to a validity indicator value read for the group. Where the value read and the value computed compare equal, it can be assumed that the dirty indicator values of the group are correct. Preferably the validity indicator is a parity indicator...When a parity error is detected, all of the dirty indicators associated with the parity indicator that has flagged a potential error are to treated as suspect. As consequence, when a parity error is detected for a group of dirty indicators, all of the pages of memory associated with those dirty indicators are treated as being dirtied and they are therefore copied between memories. The dirty indicators and the parity indicator are then reset.” (Emphasis added) (See also page 31, lines 17-24, page 33, line 23 - page 34, line 2, page 25, lines 13-19, and pages 4-6 of Applicant’s Specification, and Figures 11 and 11A)

Williams teaches a memory management system for a fault tolerant computer system. The system includes a dirty RAM 50 which records dirty bits for pages in memory which have been modified.

Applicant respectfully submits that Williams and IEEE Dictionary – “parity check”, whether alone or combined, fail to teach or suggest “said dirty indicators being stored in groups with each group having associated therewith a validity indicator computed from the dirty indicator values of the group, the control logic being operable on reading a said group to compute a validity indicator value based on the dirty indicator values for the group to determine the integrity of the group” as recited in claim 1.

First, Williams teaches, “Preferably, the recording of memory updates (writes) is not based on recording each address accessed, but rather on memory segments (pages) updated (written to). In other words, the first and/or second recording mechanisms preferably record the segments (or pages) updated (written to). This can be done effectively using a segment (or page) memory with a bit per segment (page) for identifying the segments (pages) written to.”

(Williams, Column 2, Lines 55-62) (Emphasis added) Applicant respectfully submits that Williams teaches that a bit (i.e., a dirty bit) records when a page of memory is updated (written to), to identify pages that are updated. Also, Williams teaches that the dirty bits are stored in a segment of memory (e.g., dirty RAM 50). However, Williams fails to teach or suggest “said dirty indicators being **stored in groups with each group** having associated therewith **a validity indicator computed from the dirty indicator values of the group**”, as recited in claim 1.

Second, Williams teaches that since some time has to elapse between the detection of the out-of-sync event (which activates the dirty RAM – column 11, lines 24 and 25) and the enabling of the dirty RAM data collection, a few dirty pages may go unrecorded. To deal with this problem, Williams teaches that a mechanism is also provided for recording memory write events around the out-of-sync event. (Williams, column 7, line 54 – column 8, line 3) This mechanism includes a secondary dirty page record which is operating continually and on a rolling basis because it cannot be predicted when a fault will send the system out-of-sync. However, Williams fails to teach or suggest, “the control logic being operable **on reading a said group to compute a validity indicator value based on the dirty indicator values for the group to determine the integrity of the group**”, as recited in claim 1. In fact, Applicant submits that Williams fails to confirm the integrity of any dirty bit. Instead, in Williams, two separate mechanisms are used to record dirty pages during different time periods.

Furthermore, Applicant submits that the IEEE dictionary definition of “parity check” only gives a very brief and general summary of that term. Applicant respectfully submits that the IEEE Dictionary – “parity check fails to teach or suggest “said dirty indicators being stored in groups with each group having associated therewith a validity indicator computed from the dirty indicator values of the group, the control logic being operable on reading a said group to compute a validity indicator value based on the dirty indicator values for the group to determine the integrity of the group” as recited in claim 1. There is no suggestion in the IEEE dictionary that a parity check could or should be applied in the field of dirty memory.

In accordance, independent claim 1 is believed to patentably distinguish over Williams and IEEE Dictionary – “parity check”, whether alone or combined. Claims 2 and 7-9 depend on claim 1 and are therefore believed to patentably distinguish over Williams and IEEE Dictionary – “parity check”, whether alone or combined, for at least the reasons given above.

Likewise, independent claims 10, 17, and 20 recite features similar to those highlighted above with regard to independent claim 1 and are therefore believed to patentably distinguish over Williams and IEEE Dictionary – “parity check”, whether alone or combined, for at least the reasons given above. Claims 11-12 and 14-16, claims 18-19, and claims 21 and 26-29 depend on claim 10, claim 17, and claim 20, respectively, and are therefore believed to patentably distinguish over Williams and IEEE Dictionary – “parity check”, whether alone or combined, for the same reasons.

Additionally, Claims 6, 13, and 25 were rejected under 35 U.S.C. §103(a) as being unpatentable over Williams (U.S. Patent 5,953,742) in view of IEEE Dictionary – “parity check” as applied to claims 1, 10, and 20 above, and further in view of IEEE Dictionary – “word(6)”. Applicant respectfully traverses this rejection. Claim 6, claim 13, and claim 25 are dependent upon claim 1, claim 10, and claim 20, respectively, and are believed to patentably distinguish over Williams in view of IEEE Dictionary – “parity check” and further in view of IEEE Dictionary – “word(6)”, whether alone or combined, for at least the reasons given in the above paragraphs discussing claim 1.

Furthermore, Applicant respectfully requests examination of added Claims 30-35.

Independent claim 30 includes the features of original claim 3, and dependent claim 31 includes the features of original claim 4 and is dependent upon claim 30. Independent claim 32 includes the features of original claim 5. Independent claim 33 includes the features of original claim 22, and dependent claim 34 includes the features of original claim 23 and is dependent upon claim 33. In addition, independent claim 35 includes the features of original claim 24.

Applicant submits that each of the added claims 30-35 recites a combination of features deemed allowable by the Examiner.

In accordance, claims 30, 32, 33, and 35 are believed to patentably distinguish over the cited references, whether alone or combined. Claim 31 and claim 34 depend on claim 30 and claim 33, respectively, and are believed to patentably distinguish over the cited references, whether alone or combined, for at least the reasons given above.

CONCLUSION

In light of the foregoing amendments and remarks, Applicant submits that all pending claims are now in condition for allowance, and an early notice to that effect is earnestly solicited.

If a phone interview would speed allowance of any pending claims, such is requested at the Examiner's convenience.

If any extensions of time (under 37 C.F.R. § 1.136) are necessary to prevent the above referenced application(s) from becoming abandoned, Applicant(s) hereby petition for such extensions. If any fees are due, the Commissioner is authorized to charge said fees to Meyertons, Hood, Kivlin, Kowert, & Goetzel, P.C. Deposit Account No. 501505/5681-03000/BNK.

Respectfully submitted,



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IN THE DRAWINGS:

Please amend the drawings as follows.

The attached replacement sheets of drawings include changes to Figures 11, 11A, 13, 14, 15, 16, and 17.

The replacement sheets, which include Figures 11, 11A, and 13-17, replace the original sheets including Figures 11, 11A, and 13-17. The replacement sheets include previously omitted labels.